

In the Specification:

On page 1, after the title insert the following:

RELATED APPLICATION

This is a U.S. National Phase Application under 35 USC 371 of International Application PCT/FR03/00810, filed 13 March 2003.

FIELD OF THE INVENTION

On page 1, before line 10, insert the following heading:

BACKGROUND OF THE INVENTION

On page 3, before line 16, insert the following heading:

SUMMARY OF THE INVENTION

On page 3, amend the paragraph beginning on line 16 as follows:

~~Accordingly, the technical problem to be solved by~~ One object of the present invention is ~~that of proposing to provide~~ an optical device for converting WDM signals, the pulses of which are simultaneous and carried by different wavelengths, into an OTDM signal, the components of which are time shifted and carried by the same wavelength, and enabling operation at very high bit rates, and thus enabling implementation in long-haul optical transmission networks operating at very high bit rates, typically of 40 Gbit/s and above.

Amend the paragraph between page 3, line 26 and page 4, line 3 as follows:

~~The solution according to the present invention of the technical problem as stated is obtained by the fact that said device comprises:~~ This and other objects are attained in accordance with one aspect of the invention directed to such an optical device which comprises ~~[[-]]~~shifting means adapted to introduce a time shift between the pulses of the WDM signals carried by the optical carriers, ~~[[-]]~~ modulation means adapted to modify the optical power of the WDM signals, ~~[[-]]~~an optical spectral and temporal multiplexer/ demultiplexer, ~~[[-]]~~ a birefringent propagation medium into which the WDM signals are injected in such a manner as to achieve a soliton trapping phenomenon, and ~~[[-]]~~ absorption means adapted to introduce optical losses into the components of the OTDM signal.

On page 4, amend the paragraph between lines 12 and 30, as follows:

~~The present invention solves the technical problem as stated by providing~~ Another aspect of the invention is directed to a method of converting WDM signals, ~~whose~~ the ~~pulses of which~~ are simultaneous and carried by different wavelengths, into an OTDM signal, ~~whose~~ the ~~components of which~~ are time shifted and carried by the same wavelength, by means of said device. This method is noteworthy in that it comprises the steps of~~[[: -]]~~ time shifting the pulses of the WDM signals carried by the optical carriers, ~~[[-]]~~ attenuating the WDM signals in order for them to have different optical powers, ~~[[-]]~~ spectrally and temporally multiplexing the WDM signals, ~~[[-]]~~ injecting the wavelength division multiplex obtained into the birefringent propagation medium in such a manner as to achieve a soliton trapping phenomenon and obtain an OTDM signal, and ~~[[-]]~~

equalizing the optical power of the components of the OTDM signal obtained.

On page 4, amend the paragraph beginning on line 31 as follows and combine it with the paragraph on page 5, between lines 4-15, as follows:

~~Another technical problem to be solved by~~ aspect of the present invention is directed to ~~that of proposing~~ an optical device able to carry out the opposite conversion, i.e. able to convert an OTDM signal, the components of which are time shifted (t_1 , t_2 , t_3 , t_4) and carried by the same wavelength (λ_4), into WDM signals, the pulses of which are carried by different wavelengths (λ_1 , λ_2 , λ_3 , λ_4), and enabling operation at very high bit rates and implementation in long-haul optical transmission networks. ~~The solution according to the present invention of this problem is obtained by the fact that said device comprises~~ absorption means adapted to introduce optical losses into the components of the OTDM signal, a birefringent propagation medium into which the OTDM signal is injected in such a manner as to achieve a soliton trapping phenomenon, an optical spectral and temporal multiplexer/demultiplexer, and modulation means adapted to modify the optical power of the WDM signals.

On page 5, amend the paragraph between lines 16 and 36, as follows:

~~The present invention solves this technical problem by providing~~ Another aspect of the present invention is directed to a method of converting an OTDM signal, ~~whose the components of which~~ are time shifted relative to each other and carried by the same wavelength into WDM signals, ~~whose the pulses of which~~ are carried by different wavelengths, by means of said device.

This method is noteworthy in that it comprises the steps of: ~~[[-]]~~ attenuating the components of the OTDM signal in such a manner that they have different optical powers, ~~[[-]]~~ injecting the OTDM signal into the birefringent propagation medium in such a manner as to achieve a soliton trapping phenomenon and recover a wavelength division multiplex, ~~[[-]]~~ spectrally and temporally demultiplexing the wavelength division multiplex in such a manner as to obtain a plurality of WDM signals whose pulses are time shifted and carried by different wavelengths, and ~~[[-]]~~ equalizing the optical power of the pulses of the WDM signals obtained.

On page 5, before line 37, insert the following heading:

BRIEF DESCRIPTION OF THE DRAWINGS

On page 6, before line 23, insert the following heading:

DETAILED DESCRIPTION OF THE DRAWINGS